INSTRUCTIONS

-J04106 REV. 2011-02-15

MINI-TACH WITH SHIFT LIGHT

GENERAL

Kit Numbers

69827-06 matches Nostalgic Face gauges.

69828-06 matches Spun Aluminum Face gauges.

69829-06 matches Black Face gauges.

Models

For model fitment information, see the P&A retail catalog or the Parts and Accessories section of www.harley-davidson.com (English only).

Additional Parts Required

Separate purchase of a gauge housing and a mini-tach mounting bracket is needed in order to complete this installation. See the P&A retail catalog or the Parts and Accessories section of www.harley-davidson.com (English only) for available gauge housing and mini-tach mounting bracket kits, and model fitment information.

2011 and later Softail models will require separate purchase of an Electrical Connection Kit (Part No. 72673-11).

Tools and Supplies Required

An UltraTorch UT-100 (Part No. HD-39969), Robinair Heat Gun (Part No. HD-25070) with Heatshrink Attachment (Part No. HD-41183), or other suitable radiant heating device is required for the proper installation of this kit.

Installation of this kit will also require the use of a terminal crimping tool, and other parts and supplies. Electrical Contact Lube (Part No. 99861-02) or equivalent is required after battery cable disconnection. These items are available from a Harley-Davidson dealer.

⚠WARNING

The rider's safety depends upon the correct installation of this kit. Use the appropriate service manual procedures. If the procedure is not within your capabilities or you do not have the correct tools, have a Harley-Davidson dealer perform the installation. Improper installation of this kit could result in death or serious injury. (00333a)

NOTE

This instruction sheet refers to service manual information. A service manual for this year/model motorcycle is required for this installation and is available from a Harley-Davidson dealer.

Electrical Overload

NOTICE

It is possible to overload your vehicle's charging system by adding too many electrical accessories. If the combined electrical accessories operating at any one time consume more electrical current than the vehicle's charging system can produce, the electrical consumption can discharge the battery and cause damage to the vehicle's electrical system. See an authorized Harley-Davidson dealer for advice about the amount of current consumed by additional electrical accessories or for necessary wiring changes. (00211c)

⚠WARNING

When installing any electrical accessory, be certain not to exceed the maximum amperage rating of the fuse or circuit breaker protecting the affected circuit being modified. Exceeding the maximum amperage can lead to electrical failures, which could result in death or serious injury. (00310a)

This mini-tach kit requires up to **315 mA** additional current from the electrical system.

Kit Contents

See Figure 7 and Table 1.

INSTALLATION

Preparation

NOTE

For vehicles equipped with security siren:

- *Verify that the Hands-Free Fob is present.*
- *Turn the ignition key switch to IGNITION.*

For EFI models:

⚠WARNING

To prevent spray of fuel, purge system of high-pressure fuel before supply line is disconnected. Gasoline is extremely flammable and highly explosive, which could result in death or serious injury. (00275a)

Follow the instructions in the service manual to purge the fuel supply of high pressure gasoline and remove the fuel supply line.

For ALL vehicles with main fuse:

⚠WARNING

To prevent accidental vehicle start-up, which could cause death or serious injury, remove main fuse before proceeding. (00251b)

1. Refer to the service manual and follow the instructions to remove the main fuse.

   Remove and retain the seat and all seat mounting hardware.

For ALL vehicles with main circuit breaker:

⚠WARNING

To prevent accidental vehicle start-up, which could cause death or serious injury, disconnect negative (-) battery cable before proceeding. (00048a)

1. Refer to the service manual and follow the instructions to remove the seat and disconnect the negative (black) battery cable from the negative (-) battery terminal. Retain all seat mounting hardware.

For carbureted models:

⚠WARNING

Gasoline can drain from the carburetor fuel line when disconnected from fuel valve fitting. Gasoline is extremely flammable and highly explosive, which could result in death or serious injury. Wipe up spilled fuel immediately and dispose of rags in a suitable manner. (00256a)

2. Turn the fuel supply valve to OFF. Remove the fuel line from the valve.

For ALL models:

⚠WARNING

When servicing the fuel system, do not smoke or allow open flame or sparks in the vicinity. Gasoline is extremely flammable and highly explosive, which could result in death or serious injury. (00330a)

3. Follow the instructions in the service manual to remove the instrument console from the fuel tank.
4. See the correct section (Carbureted or EFI Engine) of the service manual for fuel tank removal instructions.
5. **For FLHR models, or 1986 and later FL Softail models with Chrome Headlight Nacelle Kit (Part No. 67907-96):** Follow the instructions in the service manual and the mini-tach bracket kit (purchased separately) to remove the handlebar shroud.

   For ALL OTHER models: Follow the instructions in the service manual to remove the headlamp housing.

Mini-Tach Bracket Installation

6. **For all models except FLHR:** Install the mini-tach bracket components per the instructions in **that** kit.

   For FLHR models: Follow the instructions in the service manual and the mini-tach bracket kit to install the handlebar shroud and bracket components.
7. See Figure 7. Select the rubber isolation gasket (1) from **this** kit.

NOTES

Lubricating the gasket with soapy water will make gasket installation easier.

Orient the attached grommet toward the bottom of the gasket.

8. Fit the perimeter groove in the rubber isolation gasket to the inside edge of the bracket and the grommet tab (A) of the isolation gasket to the square cutout in the bracket.

HARNESS ROUTING

NOTES

Kit 69829-06 (Black face gauge) contains ring terminals and wire leads (see Figure 7 and Table 1) that allow installation on certain models that were manufactured only with black face gauges.

Kits 69827-06 (Nostalgic face gauge) and 69828-06 (Spun Aluminum face gauge) do not contain these additional items. Installation of a Nostalgic or Spun Aluminum face kit on these vehicles may require separate purchase of one or more of these items. See a Harley-Davidson dealer for further information.

1. Obtain the mini-tach wire harness (2) from the kit, and route as follows:
   a. Route the three **unterminated** leads (B) of the mini-tach wire harness through the front forks and upper fork bracket (triple clamp) toward the mini-tach bracket.
   b. Route the **terminated** end (C) of the harness back along the frame backbone toward the seat. Follow existing wiring where practical.

HARNESS CONNECTION - GENERAL

Splicing of black, orange/white, and pink wire leads is necessary in the installation of the mini-tach to the motorcycle. Find the instructions for a specific model in the sections that follow, and refer to the service manual appendix for proper wire splicing procedures.

⚠WARNING

Be sure to follow manufacturer's instructions when using the UltraTorch UT-100 or any other radiant heating device. Failure to follow manufacturer's instructions can cause a fire, which could result in death or serious injury. (00335a)

- Avoid directing heat toward any fuel system component. Extreme heat can cause fuel ignition/explosion resulting in death or serious injury.
- Avoid directing heat toward any electrical system component other than the connectors on which heat shrink work is being performed.
- Always keep hands away from tool tip area and heat shrink attachment.

For 2011 and later Softail models: Proceed to the next section.

For ALL OTHER models: Proceed to **BLACK LEAD CONNECTION TO VEHICLE GROUND** for the specific model.

HARNESS CONNECTION - 2011 AND LATER SOFTAIL MODELS

NOTE

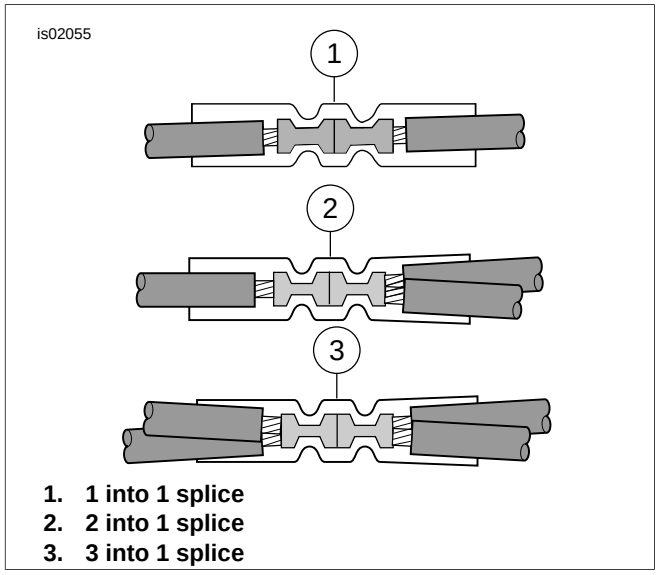
Requires separate purchase of Electrical Connection Kit (Part No. 72673-11).

1. Install the Electrical Connection Kit per the instructions in **that** kit:
   a. Locate the Digital Technician connector [91A] under the seat. Place the Electrical Connection Harness at the Digital Technician connector, but DO NOT connect them at this time.
   b. Route the mini-tach wires over to the Electrical Connection Harness. Cut the mini-tach wires to a suitable length to easily reach the sealed splice connectors on the Electrical Connection Harness.
   c. Splice the orange/white mini-tach wire to the **red/yellow** wires in the Electrical Connection Harness.
   d. Splice the black mini-tach wire to the **black** wires in the Electrical Connection Harness.
   e. Use a heat gun or suitable radiant-heating device to shrink the connector to the wires.
   f. Use the heat gun or heating device to seal the open end of the sealed splice connector on the **red/blue** wires in the Electrical Connection Harness.
   g. Pull the rubber boot out from the gray Digital Technician pin connector [91A].
   h. Connect the socket housing of the Electrical Connection Harness to connector [91A].
   i. Insert the rubber boot into the open pin connector of the Electrical Connection Harness.
   j. Proceed to **PINK LEAD CONNECTION TO TACHOMETER SIGNAL SOURCE: For ALL OTHER models**.

BLACK LEAD CONNECTION TO VEHICLE GROUND

For 1996 through 2003 XL models

1. Refer to the service manual appendix for proper wire splicing procedures and wiring diagrams.
2. Use a sealed splice connector (6) from the kit to splice the black lead from the mini-tach harness to one of the black (BK) wire leads coming from the instrument cluster connector [20]. See Figure 1, the 2 into 1 splice configuration.
3. Proceed to **For ALL models** in this section.



1. 1 into 1 splice
2. 2 into 1 splice
3. 3 into 1 splice

Figure 1. Splice Configurations

For all models EXCEPT 1996 through 2003 XL

4. Locate the main harness chassis ground connection on the frame. See the service manual for this model and year vehicle for specific location.
5. Remove the ground screw or nut from the chassis ground.
6. Select the correct ring terminal (3 or 4) to fit the ground screw or stud.
7. Cut the black wire on the mini-tach wire harness to easily reach the ground location, and crimp the ring terminal to the end of the wire according to the Packard crimping tool instructions in the service manual appendix.
8. Install the ring terminal to the ground connection, and secure per the torque specification in the service manual.

For ALL models

Check to be sure there is sufficient slack in the black lead so that handlebar movement will not be restricted.

Proceed to the next section for the specific model.

ORANGE/WHITE LEAD CONNECTION TO POWER SOURCE

Use the service manual wiring diagrams to locate the tachometer power source for a specific model and year vehicle.

For 1984-1995 Softail models

The tachometer power source is the 15 Amp accessory circuit breaker with two orange/white leads inside the fuel tank console.

1. Cut off and discard the terminal on the orange/white (O/W) **mini-tach wire harness** power lead.
2. Select the correct ring terminal from the kit to fit the circuit breaker stud diameter.
3. Crimp the ring terminal to the end of the wire according to the Packard crimping tool instructions in the service manual appendix.
4. Remove the nut from the circuit breaker terminal with two orange/white (O/W) wires attached.
5. Place the ring terminal from the orange/white (O/W) mini-tach lead to the circuit breaker terminal, and tighten the nut securely.
6. Proceed to **For ALL models** in this section.

For 1996-2003 Softail and FXDWG models

The tachometer power source is the #2 cavity in the tail lamp connector [7] under the seat.

1. Cut off and discard the terminal on the orange/white (O/W) **mini-tach wire harness** power lead.
2. Remove the orange/white (O/W) lead from the tail lamp pin housing [7A] cavity #2 according to the AMP Multilock instructions in the service manual appendix. Cut the lead about 1.0 inch (25.4 mm) from the terminal.
3. Obtain a sealed splice connector (6) from the kit. See Figure 1, the 2 into 1 splice configuration. Splice the mini-tach wire harness power lead and two segments of the orange/white (O/W) lead from cavity #2 according to the instructions in the service manual appendix.
4. Insert the terminal and orange/white (O/W) lead into cavity #2 according to the AMP Multilock instructions in the service manual appendix.
5. Proceed to **For ALL models** in this section.

For 2004 and later FXDWG models

The tachometer power source is an open fuse position on the electrical caddy. See the ELECTRICAL CADDY section of the service manual and the correct wiring diagram in the service manual appendix.

1. Remove the electrical caddy from the vehicle per service manual instructions.
2. Locate the fuse cavity indicated as "OPEN" on the electrical caddy. There should be a wire feeding one side of this circuit, but no mating wire or fuse will be present.

   Insert the terminal on the orange/white wire of the mini-tach wire harness until it stops. Refer to a nearby factory-installed terminal for comparison to verify proper orientation and depth.
3. See Figure 7. Install the 2 Amp fuse (8) from the kit into the OPEN fuse cavity to complete the circuit.
4. Install the electrical caddy and cover onto the vehicle per the instructions in the service manual.
5. Proceed to **For ALL models** in this section.

For 2004-2010 Softail models

The tachometer power source is an open fuse position on the fuse panel. See the FUSES section of the service manual and the correct wiring diagram in the service manual appendix.

1. Remove the fuse block cover. Remove the two hex head screws fastening the fuse block bracket, and pull the bracket and fuse block assembly away from the motorcycle frame.
2. Press the tab retaining the left-hand fuse block, and slide the block out of the mounting slots.
3. Locate the fuse cavity indicated as "P&A IGN" on the fuse block cover. There should be a wire feeding one side of this circuit, but no mating wire or fuse will be present.

   Insert the terminal on the orange/white wire of the mini-tach wire harness until it stops. Refer to a nearby factory-installed terminal for comparison to verify proper orientation and depth.
4. See Figure 7. Install the 2 Amp fuse (8) from the kit into the P&A IGN fuse cavity to complete the circuit.
5. Slide the fuse block into the mounting slots in the fuse block bracket until it clicks firmly into place. Place the bracket and fuse block assembly into position, and fasten with the two hex head screws removed earlier. Tighten securely.

   Install the fuse block cover.
6. Proceed to **For ALL models** in this section.

For 1994-2003 FLHR models

The tachometer power source is an orange/white (O/W) main harness power lead inside the right side cover, near the top.

1. Cut off and discard the terminal on the orange/white (O/W) **mini-tach wire harness** power lead.
2. Obtain a sealed splice connector (6) from the kit. Carefully slice open an area of the main harness wrap, and cut an orange/white (O/W) main harness power lead at an accessible point.

   See Figure 1, the 2 into 1 splice configuration. Splice the mini-tach wire harness power lead to the main harness power lead according to the instructions in the service manual appendix.
3. Proceed to **For ALL models** in this section.

For 2004 and later FLHR models, EXCEPT 2007

The tachometer power source is an open fuse position on the fuse panel. See the FUSES section of the service manual and the correct wiring diagram in the service manual appendix.

1. Remove the left-hand side cover, fuse block and dust cover per the instructions in the service manual.
2. Locate the fuse cavity indicated as "P&A IGN" "2A MAX". There should be a wire feeding one side of this circuit, but no mating wire or fuse will be present.

Remove the three existing fuses in this row, noting their location.

3. Gently remove the orange plastic secondary lock from the fuse block.
4. See Figure 7. Obtain the orange/white power adapter wire (7) from the kit.

   Insert the terminal on the adapter wire into the "P&A IGN" "2A MAX" cavity until it stops. Refer to a nearby factory-installed terminal for comparison to verify proper orientation and depth.

   Install the secondary lock.
5. Cut the excess length from the orange/white wire **of the mini-tach wire harness** to within easy reach of the orange/white adapter wire installed in Step 4.
6. Using a sealed splice connector (6) from the kit, splice the two orange/white wires. See Figure 1, the 1 into 1 splice configuration.
7. Install the 2 Amp fuse (8) from the kit into the P&A IGN fuse cavity to complete the circuit.

   Install the three fuses removed in Step 2 into the proper cavities.
8. Install the dust cover onto the fuse block, and install the fuse block per the instructions in the service manual.
9. Proceed to **For ALL models** in this section.

For 2007 FLHR models

The tachometer power source is an open fuse position on the fuse panel. See the FUSES section of the service manual and the correct wiring diagram in the service manual appendix.

1. Remove the right-hand side cover, fuse block and dust cover per the instructions in the service manual.
2. Locate the fuse cavity indicated as "P&A IGN" "2A MAX". There should be a wire feeding one side of this circuit, but no mating wire or fuse will be present.

   Remove the three existing fuses in this row, noting their location.
3. Gently remove the orange plastic secondary lock from the fuse block.

   Insert the terminal on the orange/white wire of the mini-tach wire harness until it stops. Refer to a nearby factory-installed terminal for comparison to verify proper orientation and depth.

   Install the secondary lock.
4. See Figure 7. Install the 2 Amp fuse (8) from the kit into the P&A IGN fuse cavity to complete the circuit.

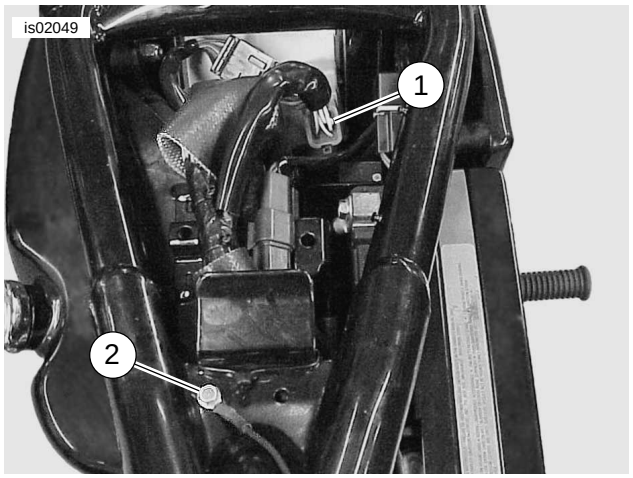
   Install the three fuses removed in Step 2 into the proper cavities.
5. Install the dust cover onto the fuse block, and install the fuse block per the instructions in the service manual.
6. Proceed to **For ALL models** in this section.

For 1996-2003 XL Custom models

The tachometer power source is an orange/white (O/W) main harness power lead inside the side cover or under the seat.

1. Cut off and discard the terminal on the orange/white (O/W) **mini-tach wire harness** power lead.
2. See Figure 2. Obtain a sealed splice connector (6) from the kit. Carefully slice open an area of the main harness wrap, and cut an orange/white (O/W) main harness power lead at an accessible point.

   See Figure 1, the 2 into 1 splice configuration. Splice the mini-tach wire harness power lead to the main harness power lead according to the instructions in the service manual appendix.
3. Proceed to **For ALL models** in this section.



1. Power (O/W) lead in main harness
2. Ground

Figure 2. Wire Harness and Ground Location (2003 or earlier XL)

For 2007 and later XL Custom models

The tachometer power source is an open fuse position on the fuse panel. See the FUSES section of the service manual and the correct wiring diagram in the service manual appendix.

1. Remove the left-hand side cover from the vehicle. Loosen the "H"-bracket per the instructions in the service manual, and pull it away from the frame to gain access to the back side of the fuse block.
2. Locate the fuse cavity indicated as "P&A IGN" "2A MAX". There should be a wire feeding one side of this circuit, but no mating wire or fuse will be present.

   Insert the terminal on the orange/white wire of the mini-tach wire harness until it stops. Refer to a nearby factory-installed terminal for comparison to verify proper orientation and depth.
3. See Figure 7. Install the 2 Amp fuse (8) from the kit into the P&A IGN fuse cavity to complete the circuit.
4. Fasten the "H"-bracket to the vehicle frame per the instructions in the service manual. Install the left-hand side cover.

For ALL models

Check to be sure there is sufficient slack in the orange/white lead so that handlebar movement will not be restricted.

Proceed to the next section for the specific model.

PINK LEAD CONNECTION TO TACHOMETER SIGNAL SOURCE

Use the service manual wiring diagrams to locate the tachometer signal source for a specific model and year vehicle.

For 1984-1999 Softail and 1996-1998 FXDWG models

The tachometer signal source is the coil primary terminal with the pink (PK) or blue (BE) wire lead attached.

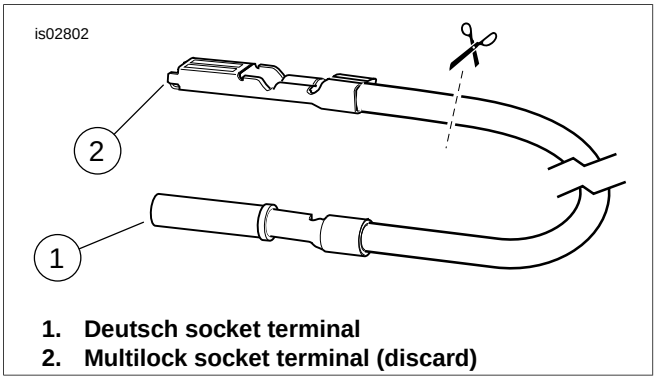
1. Cut off and discard the terminal on the pink (PK) **mini-tach wire harness** signal lead.
2. Select the correct ring terminal from the kit to fit the coil stud diameter.
3. Crimp the ring terminal to the end of the wire according to the Packard instructions in the service manual appendix.
4. Remove the nut from the coil primary terminal with the pink (PK) or blue (BE) wire attached. Place the ring terminal from the pink (PK) mini-tach lead to the coil terminal, and tighten the nut to 4-7 **in-lbs** (0.4-0.9 Nm).
5. Proceed to **For ALL models** in this section.

For 2000-2003 Softail and 1999-2003 FXDWG models

The tachometer signal source is the pink (PK) wire either tucked inside or terminated and cable-strapped to the conduit at the speedometer connector [39B] inside the fuel tank console.

1. Cut off and discard the terminal on the pink (PK) **mini-tach wire harness** signal lead.
2. Obtain the signal adapter wire lead (13) and a sealed splice connector (6) from the kit. See Figure 3. Cut the Multilock socket terminal from the signal adapter wire lead, close to that terminal.

   Splice the signal adapter wire lead to the mini-tach wire harness signal lead according to the instructions in the service manual appendix.



1. Deutsch socket terminal
2. Multilock socket terminal (discard)

Figure 3. Cut Multilock Terminal From Adapter Lead

3. Free the pink (PK) tachometer signal source wire inside the fuel tank console, and connect the signal adapter wire lead to the tachometer signal source wire.
4. Proceed to **For ALL models** in this section.

For 1994-1998 FLHR models

The tachometer signal source is the ignition or ECM harness connector [8] under the right side cover.

1. Cut off and discard the terminal on the pink (PK) **mini-tach wire harness** signal lead.
2. Remove the pink (PK) lead from the ignition or ECM harness connector cavity #3 according to the Deutsch instructions in the service manual appendix. Cut the lead about 1.0 inch (25.4 mm) from the terminal.
3. Obtain a sealed splice connector (6) from the kit.

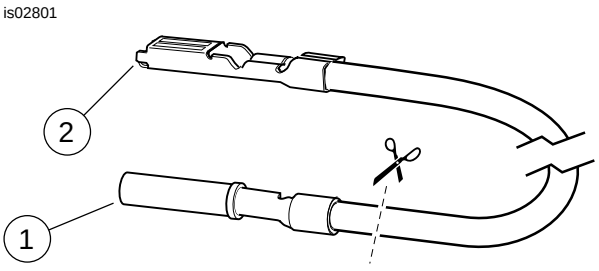
   Splice the mini-tach wire harness signal lead and two segments of the pink (PK) lead from cavity #3 according to the instructions in the service manual appendix. See Figure 1, the 2 into 1 splice configuration.
4. Insert the terminal and pink (PK) lead into cavity #3 per the Deutsch instructions in the service manual appendix.
5. Proceed to **For ALL models** in this section.

For 1999-2003 FLHR models

The tachometer signal source is the pink (PK) wire near the speedometer connector [39B], either tucked underneath the conduit, or terminated with a single connector and cable-strapped to the outside of the conduit.

1. Cut off and discard the terminal on the pink (PK) **mini-tach wire harness** signal lead.
2. Obtain the signal adapter wire lead (13) and a sealed splice connector (6) from the kit. See Figure 4. Cut the Deutsch socket terminal from the signal adapter wire lead, close to that terminal.

   Splice the signal adapter wire lead to the mini-tach wire harness signal lead according to the instructions in the service manual appendix.



1. Deutsch socket terminal (discard)
2. Multilock socket terminal

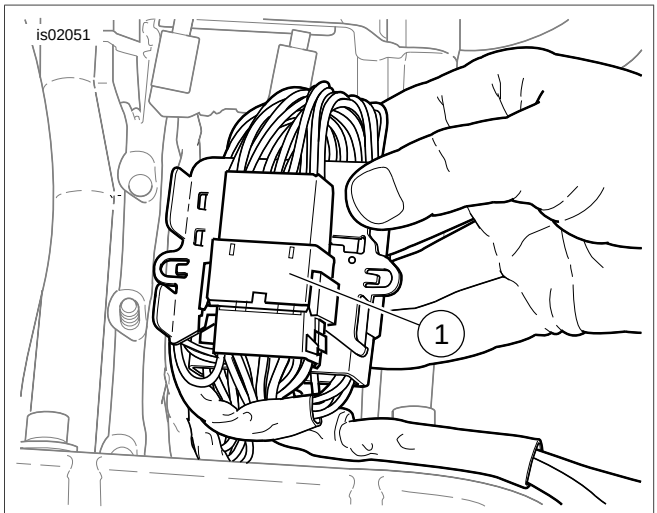
Figure 4. Cut Deutsch Terminal From Adapter Lead

3. Free the pink (PK) tachometer signal source wire from the conduit on the vehicle, and connect the signal adapter wire lead to the tachometer signal source wire.
4. Proceed to **For ALL models** in this section.

For 1996-2003 XL Custom models

See Figure 5. The tachometer signal source is the #7 cavity of the instrument lights connector [20]. The connector is located under the fuel tank or in the handlebar riser cover on XL Custom models.

1. Cut off and discard the terminal on the pink (PK) **mini-tach wire harness** signal lead.
2. Obtain the signal adapter wire lead (13) and a sealed splice connector (6) from the kit.



1. Instrument connector #7 cavity

Figure 5. Instrument Lights Connector [20] (2003 XL Custom shown)

NOTE

Most 1996-1998 models will have an AMP Multilock connector in this position, while most 1999-2003 models will have a Deutsch connector. Verify connector type before proceeding.

3. See Figure 2 and Figure 3. Cut the un-needed socket terminal from the signal adapter wire lead, close to that terminal.

   Splice the signal adapter wire lead to the mini-tach wire harness signal lead according to the instructions in the service manual appendix.

4. Follow AMP or Deutsch instructions in the service manual appendix. Insert the signal adapter wire lead terminal into cavity #7 of instrument lights socket housing [20B].

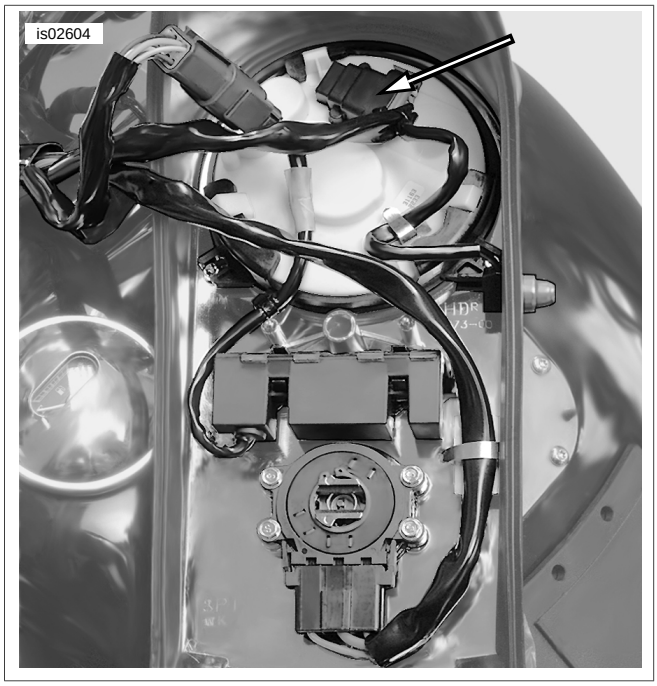


Figure 6. Speedometer Connector [39] (2004 FXST shown)

For ALL OTHER models

The tachometer signal source is the #3 cavity in the connector [39B] on the back of the speedometer. See Figure 6.

Follow the Packard Micro 64 instructions in the service manual appendix. Insert the socket terminal on the pink (PK) mini-tach wire harness signal lead into cavity #3 of connector [39B].

For ALL models

Determine if there is sufficient slack in the pink lead so that handlebar movement will not be restricted.

TACHOMETER INSTALLATION

5. **ALL models:** At the front of the vehicle, lubricate the mini-tach harness conduit with soapy water, and pull the three unterminated leads and conduit up through the grommet at the bottom of the isolation gasket.

6. Obtain the mini-tach (11) from the kit. Orient the face of the gauge so it reads upright, and slide the mini-tach into the bracket and isolation gasket from the front side.

7. Obtain the three small ring terminals (5) from the kit, and crimp the terminals to the mini-tach harness wire ends according to the Packard crimping tool instructions in the service manual.

8. Install the ring terminals to the back of the mini-tach, matching the wire colors to the proper terminal posts as follows:

   a. Orange/white (power) to post marked "+".

   b. Black (ground) to post marked "G".

   c. Pink (signal) to post marked "S".

NOTE

Over-tightening the nuts may damage the mini-tach.

9. Use the nut and lock washer on each post to secure the ring terminal to that post. Tighten the nuts to 4-7 **in-lbs** (0.4 to 0.9 Nm).

   Verify that the ring terminals or wire leads are not grounding against each other.

10. Use cable straps (9) from the kit to secure the mini-tach wire harness to the vehicle harnesses.

SHIFT LIGHT PROGRAMMING

Prior to installing the gauge housing to the back of the mini-tach, the shift light setting must be programmed into the gauge.

NOTICE

Do not over-tighten bolts on battery terminals. Use recommended torque values. Over-tightening battery terminal bolts could result in damage to battery terminals. (00216a)

NOTE

*Verify that the ignition key switch is in the OFF position **before** installing the main fuse or attaching the negative battery cable.*

1. Verify that the ignition key switch is in the OFF position.

   Vehicles with main fuse: Refer to the service manual and follow the instructions to install the main fuse.

Vehicles with main circuit breaker: Refer to the service manual and follow the instructions to attach the negative battery cable.

Apply a light coat of Harley-Davidson electrical contact lubricant (Part No. 99861-02), petroleum jelly or corrosion retardant material to the negative battery terminal.

2. Locate the black rubber plunger on the back of the gauge. The plunger is a programming tool that also acts as a hole plug when not in use.
3. Gently pull the plunger from the back of the gauge. Rotate the plunger, and insert the long end back into the hole to act as a tool to reach the programming button on the circuit board inside the mini-tach.
4. Turn the ignition key switch to ON to power the mini-tach, but do not start the engine.
5. Using the plunger tool, press and hold the circuit board button until the shift light on the gauge face flashes once, and the tachometer needle moves to the current set point.
6. Use single clicks on the circuit board button to advance the needle upward by fine adjustments to the desired shift point.
   a. If the desired shift point is exceeded by use of the individual clicks on the circuit board button, **press and hold** the button to cause the needle to move to full scale, then swing to "0" and continue to advance until the button is released.
   b. Release the button as the desired shift point is approached, and again use individual clicks to reach the desired shift point.
7. When the desired shift light trigger point has been selected, release the button and allow the programming sequence to timeout (approximately three seconds). The shift light will flash rapidly three times, indicating that the desired shift point has been successfully entered.
8. Turn the ignition key switch to OFF.
9. Follow the instructions in the gauge housing kit and press the gauge housing into the isolation gasket, capturing the grommet in the housing cutout. Fasten the housing to the mini-tach with the flat head screw from **that** kit.
10. Check the seal of the isolation gasket around the entire perimeter of the housing.

FINAL ASSEMBLY

NOTES

During assembly, check the wire harness along its entire length for clearance from moving parts, heat sources, sharp edges and pinch points.

Flex the front suspension, and turn the front forks to the full left and right stops to check for smooth and free operation and pulling or binding of the harness.

1. **For all models except FLHR:** Follow the instructions in the service manual to install the headlamp housing.

   For FLHR models: Follow the instructions in the service manual to install the handlebar shroud.

⚠WARNING

When servicing the fuel system, do not smoke or allow open flame or sparks in the vicinity. Gasoline is extremely flammable and highly explosive, which could result in death or serious injury. (00330a)

2. Install the fuel tank. Refer to the correct section (Carbureted or EFI Engine) in the service manual.

⚠WARNING

After installing seat, pull upward on seat to be sure it is locked in position. While riding, a loose seat can shift causing loss of control, which could result in death or serious injury. (00070b)

3. Refer to the service manual, and follow the instructions to install the seat.

NOTICE

Do not run the engine at extremely high RPM with clutch disengaged or transmission in neutral. Running an engine at high RPM can result in engine damage. (00177a)

NOTES

Refer to the OPERATING RECOMMENDATIONS in the owner's manual for the maximum recommended engine speed for a specific model.

Allow the engine to reach normal operating temperature before checking that the desired shift light trigger point has been successfully programmed into the mini-tach.

4. Turn the ignition key switch to ON, and start the engine.
   a. With engine idling, the mini-tach should indicate idle RPM (950 to 1150 RPM).
   b. The mini-tach should respond to changes in the throttle settings.
5. Align the headlamp per service manual instructions.
6. Ride the motorcycle until the engine has warmed up. When the engine has reached normal operating temperature, increase engine RPM to the selected set point. The shift light should illuminate.

   There is a built-in timer to turn off the shift light if the gauge stays at the set point RPM for an extended time.
7. If the shift light does not illuminate at the desired point, refer to the SHIFT LIGHT PROGRAMMING section of these instructions to again enter the desired shift point.

SERVICE PARTS

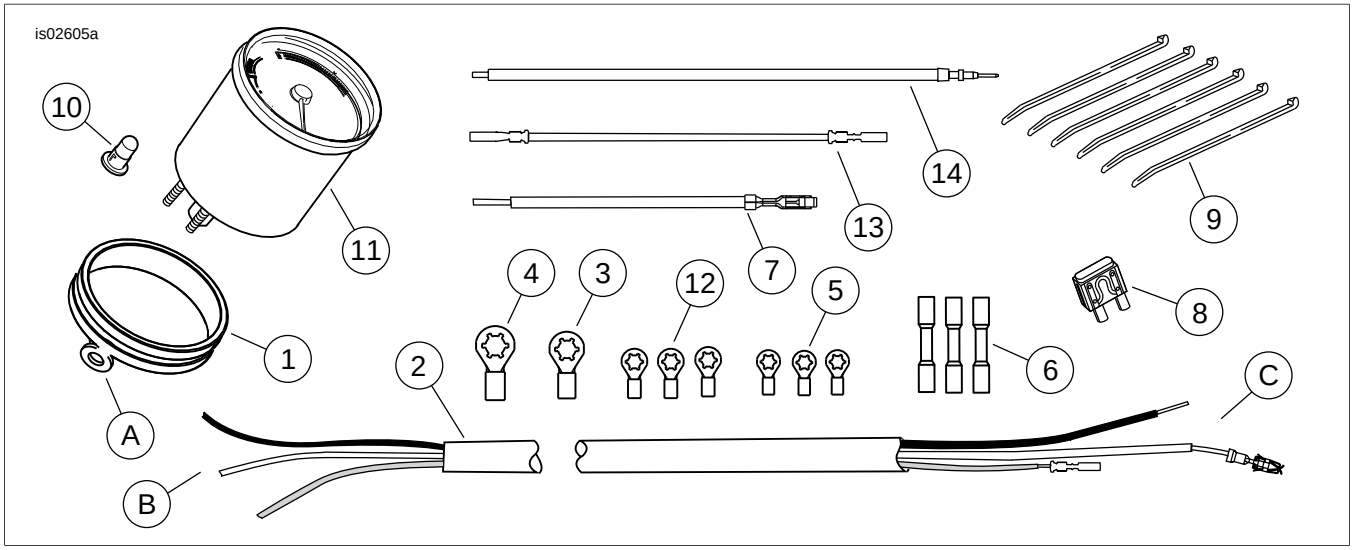


Figure 7. Service Parts, Mini-Tach Gauge Kit

Table 1. Service Parts

Kit	Item	Description (Quantity)	Part Number
Common items for ALL kits	1	Gasket, mini-tach isolation	67952-96
	2	Wire harness, mini-tach	67245-04A
	3	Ring terminal, #18-22 AWG (1/4 in. stud)	9858
	4	Ring terminal, #18-22 AWG (5/16 in. stud)	9859
	5	Ring terminal, #18-22 AWG (#6 stud) (3)	9856
	6	Butt-splice connector, #18-20 AWG (red)	70585-93
	7	Wire lead, power adapter, 4 inch (102 mm) long, (Orange/White)	Not sold separately
	8	Fuse, blade type, 2A	54305-98
	9	Cable strap (6)	10006
	10	Bulb, mini-tach	52425-98
Kit 69827-06 (Nostalgic face) additional contents	11	Gauge, mini-tach (with shift light)	Not sold separately
Kit 69828-06 (Spun Aluminum face) additional contents	11	Gauge, mini-tach (with shift light)	Not sold separately
Kit 69829-06 (Black face) additional contents	11	Gauge, mini-tach (with shift light)	Not sold separately
	12	Ring terminal, #18-22 AWG (#10 stud) (3)	9857
	13	Wire lead, signal adapter, 24 inch (0.6 m) long (Pink)	Not sold separately
	14	Wire lead, signal extension, 32 inch (0.8 m) long (Pink)	Not sold separately
Items mentioned in text, but not included in kits:			
	A	Grommet tab on isolation gasket	
	B	Unterminated end of mini-tach wire harness	
	C	Terminated end of mini-tach wire harness	